Book Reviews

Rattlesnakes. Their habits, life histories, and influence on mankind. Laurence M. Klauber. University of California Press, Berkeley, 1956. vol. 1, xxix + 708 pp., vol. 2, xvii + 709–1476. Illus. + plates. $17.50 per set.

The most striking thing about this work is its emphasis on man's relationship to rattlesnakes. While making his numerous highly technical studies of their taxonomy, the author developed a deep interest in the effect that rattlesnakes have had and still have on man; his two volumes fully reflect this interest. An invaluable chapter is devoted to Amerindians and rattlesnakes, one to post-Columbian knowledge of them, and another to myths and other popular beliefs. In addition, the man-rattler relationship appears on innumerable pages because of the author's keen sense of history: he always traces the development of sound knowledge from its beginnings in myth and fancy. For example, the 74-page chapter on the rattle includes an excellent history of the incredibly varied and often ridiculous beliefs about this unique structure. We read that the rattle-a-year belief, first printed in 1615, was seriously questioned as early as 1800. Everyone knows that its death is not yet in sight.

The next characteristics that I want to emphasize are the style and method of exposition. The author is never more technical than necessary, and his style is lucid. He takes little for granted, explaining difficult points as he goes along. The clarity and simplicity, combined with the historical approach, mean that anyone who is the least bit interested in natural history can open the book and read with fascination almost anywhere. The preceding statement is advisedly qualified because certain descriptive sections near the beginning are inherently technical and should be skipped by nonherpetologists. The general reader will find the book more and more interesting as it goes along, whereas the reverse may be true for the herpetologist.

Finally, it should be stressed that *Rattlesnakes* is definitely broader than its title. Time and time again the author goes out of his way to set forth information somewhat remotely connected with rattlesnakes. For example, three pages are devoted to the venomous snakes of the United States other than rattlers, and this discussion even includes the backfanged species, reptiles scarcely dangerous to man. Scores of additional examples could be cited. This breadth makes the two volumes a major, up-to-date source of general information on snakes for both lay reader and student. However, controversial matters often have been dealt with in too great detail, and there is repetition here and there. I believe that shorter discussions and less repetition could have reduced the length enough to have made a wider distribution certain.

The monograph as a whole can be considered to be an encyclopedia of the rattlesnakes, with this qualification: physiology as such is all but omitted, and anatomy is largely confined to structures that are important to taxonomists. Being the product of a single mind, it has a consistency lacking in some of the best encyclopedias.

Besides being one of the two leading students of rattlesnakes, Laurence M. Klauber is a pioneer in the introduction to herpetology of the statistical approach. It is not surprising, then, to find many nicely simplified explanations of statistical methods as applied to snakes. This is no mean contribution in view of the penetration of statistics into every field of science.

The first volume begins with lists of all the known forms of rattlesnakes and includes an abbreviated synonymy of each. Ranges are mapped as well as described verbally. Technical keys of the forms of six appropriate regions promote ready identification; rattlers are notoriously hard to run down in keys, and every aid will be appreciated. No detailed descriptions of species by species are given. Next comes a general account of the morphology, including the long chapter on the rattle. The rest of the volume is devoted to general natural history—such subjects as bodily functions, behavior, population, food, and reproduction are included.

Much of the second volume is a consideration of the poison apparatus and the effects of and treatment for the bite. This gives tehnical information invaluable to physicians, as well as advice that is useful to all persons who live where rattlers or even other vipers abound. Two hundred and eighty-eight consecutive pages deal, for the most part, with the relationship of man to rattlesnakes. (A chapter on legless rattlesnake enemies and those with more than two legs is included here.) It is surprising to learn in the chapter on Amerindians that 62 tribes used arrowheads poisoned with venom or another rattlesnake product. A bibliography of some 3500 titles and an extensive index conclude the book.

Both volumes are well illustrated, and each has a beautiful frontispiece in color. There are half-tone reproductions of portrait photographs of all but four of the twenty-nine known species of rattlesnakes and a great majority of the subspecies. Sixty-eight more half-tone illustrations and 121 line drawings are distributed throughout the work. Sixty-six of the latter are placed in the keys, greatly simplifying their use. A vast amount of information is summarized in 11 graphs and 58 tables.

This unique contribution stands as a monument to the erudition, industry, and literary ability of the author.

CLIFFORD H. POPE
Winnetka, Illinois

Solid State Physics. vol. 2. Advances in research and applications. Frederick Seitz and David Turnbull, Eds. Academic Press, New York, 1956. xii + 468 pp. Illus. $10.

This is the second volume in this series to appear; present plans envision a total of about a dozen. Of the five articles comprising this volume, that by Seitz and Koehler on the displacement of atoms during irradiation accounts for a third of the pages. Seitz and Koehler's discussion is restricted by choice to the effects produced by light charged particles, with only minor mention of neutron collisions. De Launay has contributed an interesting summary of the theory of specific heats and lattice vibrations. He begins with the first theoretical explanation of the Dulong-Petit law and leads up to the present day along a path well paved with elementary derivations and ample comparison with experimental results. The application of neutron diffraction to solid-state problems is discussed by Shull and Wollan. They give an impressive picture of the variety of results on crystal and magnetic structures which have been obtained with this new research tool, which is so definitely "a product of the so-called atomic age."

The remaining two articles cover various aspects of nuclear magnetic resonance. The application of this other relatively new technique to the investi-